



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/656,677	09/04/2003	Jiang Fan	2775-PAT	8803

30084 7590 06/13/2006

DONN K. HARMS
PATENT & TRADEMARK LAW CENTER
SUITE 100
12702 VIA CORTINA
DEL MAR, CA 92014

EXAMINER

WALKER, KEITH D

ART UNIT	PAPER NUMBER
----------	--------------

1745

DATE MAILED: 06/13/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

CW

Office Action Summary	Application No. 10/656,677	Applicant(s) FAN ET AL.	
	Examiner Keith Walker	Art Unit 1745	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 March 2006.
 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 and 18-38 is/are pending in the application.
 4a) Of the above claim(s) 19-25 and 27-31 is/are withdrawn from consideration.
 5) ☐ Claim(s) _____ is/are allowed.
 6) ☐ Claim(s) 1-12, 18, 26 and 32-38 is/are rejected.
 7) ☐ Claim(s) _____ is/are objected to.
 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☐ All b) ☐ Some * c) ☐ None of:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Remarks

Claims 1-12 & 18-38 are pending in the application with claims 19-25 & 27-31 withdrawn. Claims 1-12, 18, 26 & 32-38 are pending examination.

Claim Rejections - 35 USC § 112

The rejection of Claims 1-26 is withdrawn.

Claims Interpretation

It is held that an element with the "adapted for" language used in the claims is not a positive limitation but only requires the ability to so perform. It does not constitute a limitation in any patentable sense and therefore is not given patentable weight.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims 1-12 & 32-38 are rejected under 35 U.S.C. 102(b) as being anticipated by US Publication 2002/0028380 (Tanjo).

Tanjo teaches an electrode with active material particles of lithium manganese oxide coated with a hydrophobic material of polyvinylidene fluoride and a conductive carbon material, acetylene black ([0033, 0077]). A lithium salt such as LiBF₄ is an ionically conductive material and is used in the electrolyte and also coats the active

material in the polymer layer ([0040]). Concerning the limitation “whereby said active particles can be processed into said battery electrode using aqueous solutions”, this is a method of using the product and as such does not further limit the claimed product.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-12, 18, 26 & 32-38 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP Publication 2002-37364 (Nagura) in view of US Patent 4,808,496 (Hope).

Nagura teaches a lithium secondary battery with a coating on the electrode's active material particles, lithium manganese oxide (Abstract, [0003]). The coating comprises a binding hydrophobic polymer such as polyvinylidene fluoride, an electrically conductive additive of carbon and an ion conductive additive such as LiBF_4 ([0014-0023]). The electrically conductive additive can also be aluminum, where the ratio of coating weight to particle weight is less than 20 percent ([0027]). Concerning the limitation “whereby said active particles can be processed into said battery electrode using aqueous solutions”, this is a method of using the product and as such does not further limit the claimed product.

Nagura teaches the polymer is used to add flexibility to the electrode during the compression and expansion of the electrode during the charge and discharge of the

Art Unit: 1745

battery ([0004, 0012-0014]). This flexibility allows for good contact between the particles and between the electrode and the cell containers during the charge and discharge process, thereby decreasing the internal resistance of the battery.

Nagura does not teach coating the entire active material particle with the polymer.

Hope teaches coating the entire active material particle with a polymer having electrical and ionic conductive materials within the polymer (Abstract, 3:45-4:55). Coating the entire particle increases the surface area of the particle, increases the performance characteristics and life of the electrodes (2:1-6).

Therefore it would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to modify the active material partial coating of Nagura with the full particle coating of Hope to increase the surface area of the particles and increase the performance characteristics and life of the electrodes. Furthermore, by fully coating the particles of Nagura, the electrode gains more flexibility and reduces further the internal resistance of the battery.

3. Claims 18 & 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tanjo.

The teachings of Tanjo as described above are incorporated herein.

Tanjo teaches a coating to particle ratio of about 33% ([0077]). The different parts of the coating produce different properties for the electrode. For instance, the polyvinylidene fluoride provides for a hydrophilic electrode but inhibits the conductivity, while the carbon provides conductivity to the electrode. It would have been obvious to

Art Unit: 1745

one having ordinary skill at the time of the invention to vary the coating to particle weight ratio to optimize the ratio of hydrophobic and conductive properties, since it is held that discovering an optimum value of a result effective variable involves only routine skill in the art (MPEP 2144.05).

Regarding claim 18, Tanjo teaches coating the active material particles with carbon to increase the conductivity of the electrode, but fails to teach the use of aluminum. Since aluminum is used as the current collector for the electrode material, the use of the aluminum in the coating of the electrode material would provide better contact between the two substances since contact between the same materials would hinder any corrosion due to electro-potential differences. It would have been obvious to one skilled in the art to choose aluminum as an equivalent conductive material to coat the particles, since the selection of a material on the basis of its suitability for the intended use is a matter of design choice.

Response to Arguments

Applicant's arguments with respect to claim have been considered but are moot in view of the new ground(s) of rejection based on the amendments.

Regarding the rejection of Tanjo, applicant's argues the lack of teaching to a limitation drawn to a method of use in a product claim. As discussed above, the method of using limitations in a product claim have not been given patentable weight.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

Art Unit: 1745

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Keith Walker whose telephone number is 571-272-3458. The examiner can normally be reached on Mon. - Fri. 8am - 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1745

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

KW


PATRICK JOSEPH RYAN
SUPERVISORY PATENT EXAMINER